

CLAIMS:

1. A method for controlling operation of an electromechanical actuated valve in a cylinder of an internal combustion engine, the method comprising:
5 during engine operation, deactivating the electromechanically actuated valve under a first set of conditions of the electromechanically actuated valve; and
10 during engine operation, activating the electromechanically actuated valve under a second set of conditions of the electromechanically actuated valve.
2. The method of Claim 1 wherein said first set of conditions comprises a temperature indicative of a high
15 valve temperature of said electromechanically actuated valve.
3. The method of Claim 1 wherein said first set of conditions comprises a temperature indicative of a low
20 valve temperature of said electromechanically actuated valve.
4. The method of Claim 1 wherein said first set of conditions comprises an impedance indicative of a high
25 valve impedance of said electromechanically actuated valve.
5. The method of Claim 1 wherein said first set of conditions comprises an impedance indicative of a low
30 valve impedance of said electromechanically actuated valve.

6. A method for controlling operation of an electromechanical actuated valve in a cylinder of an internal combustion engine, the method comprising:
determining at least an operating condition of
5 said electromechanically actuated valve;
evaluating whether to operate said electromechanically actuated valve in said cylinder based on said determined operating condition; and
maintaining said electromechanically actuated
10 valve deactivated during a cycle of said cylinder based on said evaluation.
7. The method of Claim 6 wherein said operating condition is a temperature of a valve actuator coupled to
15 at least one of said electromechanically actuated valves.
8. The method of Claim 7 wherein said valve actuator is comprised of at least an armature, a coil, and a core.
- 20 9. The method of Claim 6 wherein said operating condition is an impedance of at least one of said electromechanically actuated valves.
10. The method of Claim 6 wherein said operating
25 condition is a temperature of at least one of said valves.
11. The method of Claim 6 wherein said operating condition is an amount of power consumed by at least one
30 of said electromechanically actuated valves.
12. The method of Claim 6 wherein said operating condition of said internal combustion engine is a time since start of said internal combustion engine.

13. A method for controlling operation of
electromechanically actuated valves in a cylinder of an
internal combustion engine, the method comprising:
determining at least an operating condition of
5 at least one of the electromechanically actuated valves;
during at least one condition selecting at
least one of the electromechanically actuated valves
based on said determined operating condition; and
deactivating said selected valves during
10 operation of the engine
14. The method of Claim 13 wherein said operating
condition is a temperature of a valve actuator coupled to
at least one of said electromechanically actuated valves.
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15. The method of Claim 14 wherein said valve actuator
is comprised of at least an armature, a coil, and a core.
16. The method of Claim 13 wherein said operating
20 condition is an impedance of at least one of said
electromechanically actuated valves.
17. The method of Claim 13 wherein said operating
condition is an amount of power consumption of at least
25 one of said electromechanically actuated valves.

18. A method for controlling at least an electromechanically actuated valve to operate in at least a cylinder of an internal combustion engine, the method comprising:

- 5 determining an operating condition of said electromechanically actuated valve;
 determining an operating condition of said internal combustion engine;
 evaluating whether to operate said
10 electromechanically actuated valve in said cylinder based on said operating condition of said electromechanically actuated valve and said engine operating condition; and
 operating said electromechanically actuated valve during a cycle of said cylinder based on said
15 evaluation.

19. The method of Claim 18 wherein said operating condition of said internal combustion engine is a time since start of said internal combustion engine.

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20. The method of Claim 18 wherein said operating condition of said internal combustion engine is a desired engine torque.

- 25 21. The method of Claim 18 wherein said operating condition of said internal combustion engine is a predicted desired engine torque.

22. The method of Claim 18 wherein said operating
30 condition of said internal combustion engine is the speed of said internal combustion engine.

23. The method of Claim 18 wherein said operating condition of said internal combustion engine is the predicted speed of said internal combustion engine.

5 24. The method of Claim 18 wherein said operating condition of said internal combustion engine is a temperature of said internal combustion engine.

25. The method of Claim 18 wherein said operating
10 condition of said electromechanically actuated valve is a temperature of a valve actuator coupled to said electromechanically actuated valve.

26. The method of Claim 18 wherein said operating
15 condition of said electromechanically actuated valve is an amount of power consumed by said electromechanically actuated valve.

27. The method of Claim 18 wherein said operating
20 condition of said internal combustion engine is an amount of fuel consumed by said internal combustion engine.

28. The method of Claim 18 wherein said operating
condition of said electromechanically actuated valve is
25 an amount of current used to actuate said electromechanically actuated valve.

29. A method for controlling at least an electromechanically actuated valve to operate in at least a cylinder of an internal combustion engine, the method comprising:

- 5 determining an operating time of said electromechanically actuated valve;
- determining an operating condition of said internal combustion engine;
- adjusting opening and closing timing of said
- 10 electromechanically actuated valve in said cylinder based on said operating time and said engine operating condition; and
- operating said electromechanically actuated valve during a cycle of said cylinder based on said
- 15 evaluation.

30. A method for controlling at least an electromechanically actuated valve to operate in at least a cylinder of an internal combustion engine, the method comprising:

- determining an number of opening and closing events of said electromechanically actuated valve;
- determining an operating condition of said internal combustion engine;
- 25 adjusting opening and closing timing of said electromechanically actuated valve in said cylinder based on said determined number of opening and closing events and said engine operating condition; and
- operating said electromechanically actuated
- 30 valve during a cycle of said cylinder based on said evaluation.

31. A computer readable storage medium having stored data representing instructions executable by a computer to control an internal combustion engine of a vehicle, said storage medium comprising:

- 5 instructions for during engine operation, deactivating the electromechanically actuated valve under a first set of conditions of the electromechanically actuated valve; and
- 10 during engine operation, activating the electromechanically actuated valve under a second set of conditions of the electromechanically actuated valve.